

## Meteorological record of voluntary observers and army post surgeons—February, 1885.

Temperature					Temperature					Temperature					Temperature				
Station.	Mean.	Maximum.	Minimum.	Rainfall.	Station.	Mean.	Maximum.	Minimum.	Rainfall.	Station.	Mean.	Maximum.	Minimum.	Rainfall.	Station.	Mean.	Maximum.	Minimum.	Rainfall.
Fort Preble, Me.	17.7	39	-16	3.11	Lenoir, N. C.	3.30				Granville, Ohio	18.6	56	-12	2.80	Genoa, Nebr.	14.1	52	-24	0.57
Orono, Me.	15.3	41	-17	4.45	Brevard, N. C.	36.1	54	20	5.38	Lafayette, Ind.	14.7	50	-26	2.02	Tecumseh, Nebr.	19.7	66	-24	1.25
Cornish, Me.	14.1	41	-14	4.50	Lincolnton, N. C.	33.3	54	8	4.68	Fort Wayne, Ind.	19.9	55	-15		Crete, Nebr.	15.2	57	-11	0.48
Gardiner, Me.	14.8	44	-13	6.44	Statesville, N. C.	30.6	62	8	4.87	Logansport, Ind.	18.1	53	-24	4.10	Fort Robinson, Nebr.	22.6	55	-24	1.12
Contoocook, N. H.	13.5	43	-10	3.80	Weldon, N. C.	34.2	62	10	2.42	Laconia, Ind.	25.7	55	-6	2.24	Syracuse, Nebr.	17.6			2.90
Lake Village, N. H.		43	-7	4.37	Chapel Hill, N. C.	30.0	68	9	2.73	Terre Haute, Ind.	51	10	1.00	Weeping Water, Nebr.	18.9				
Wiers Bridge, N. H.		43	-3	3.63	Stateburg, S. C.	40.0	64	16	3.37	Summan, Ind.	22.0	58	-14	2.35	Central City, Nebr.	14.1			1.00
Bristol, N. H.		52	-3	3.54	Aiken, S. C.	15.8	67	13	3.97	Jeffersonville, Ind.	24.4	63	-5	2.41	DeWitt, Nebr.	18.7			1.40
Ashland, N. H.		52	-2	2.91	Pacolet, S. C.	35.8	61	9		Spiceland, Ind.	17.0	52	-14	1.53	Nebraska City, Nebr.	14.9			0.35
Woodstock, N. H.		52	-3	3.20	Milledgeville, Ga.	42.4	71	13	3.39	Guilford, Ind.	22.1	56	-14	2.76	Stromsburg, Nebr.	17.0			0.52
Belmont, N. H.		52	-4	4.09	Athens, Ga.	39.1	66	7	4.86	Vevay, Ind.	25.1	59	-9	2.46	Madison, Nebr.	13.1	48	-22	1.75
Wolborough, N. H.		52	-5	5.63	Forsyth, Ga.	44.4	73	14	2.92	Wabash, Ind.	15.6	60	-15	1.26	Table Rock, Nebr.	16.7			0.86
Charlotte, Vt.	9.0	40	-20	2.70	Quitman, Ga.	57.1	79	31	5.50	La Grange, Ind.	11.8	46	-21	1.43	West Hill, Nebr.	13.0			0.45
Burlington, Vt.	12.2	38	-18	1.40	Archer, Fla.	57.1	79	32	6.90	Monticello, Ind.	14.4	45	-25	1.87	Superior, Nebr.	18.9			
Woodstock, Vt.	6.7	41	-38	2.85	Mayport, Fla.	56.3	70	38	4.48	Attica, Ind.	12.7	50	-24		Booneville, Mo.	10.5	52	-17	0.66
Dorset, Vt.	11.5	35	-15	3.37	Limona, Fla.	59.8	85	38	4.45	Angola, Ind.	11.7	52	-25	1.23	Caryville, Mo.	49	-21		1.12
Lunenburg, Vt.	8.8	34	-26	2.35	Fort Barrancas, Fla.	52.6	75	23	5.35	Connersville, Ind.	18.7	53	-17	2.43	Greenfield, Mo.	27.0	64	-12	0.60
Newport, Vt.	7.5	40	-30	2.35	Saint Augustine, Fla.	55.0	77	34	4.35	Noblesville, Ind.	21.0	48	-14	0.41	Independence, Mo.	19.0	54	-20	0.75
Stratford, Vt.	11.0	40	-16	2.00	Green Springs, Ala.	43.4	69	13	2.72	Miami, Ind.	12.9	54	-25		Springfield, Mo.	27.4	64	-13	1.05
Amherst, Mass.	10.9	41	-8	3.38	Mt. Vernon B'ks, Ala.	49.8	81	15	3.52	Greenfield, Ind.	17.0	45	-16		Pierce City, Mo.	25.7	63	-8	0.90
Williamstown, Mass.	13.7	38	-10	3.56	Greensboro, Ala.	41.9	70	10	3.33	Franklin, Ind.	18.9	60	-16	0.53	Centerville, Mo.	68	-12		0.88
Dudley, Mass.		42	-4	4.15	Birmingham, Ala.	41.3	74	10		Crawfordsville, Ind.	18.7	60	-18		Conception, Mo.	15.4	47	-23	
Mendon, Mass.	16.6	42	-4		Point Pleasant, La.	45.0	69	20	4.72	Farmland, Ind.	16.4	52	-16	1.33	Chamois, Mo.	27.5	59	-12	0.75
Milton, Mass.	19.3	45	-3	2.46	Liberty Hill, La.	74	15			Huntington, Ind.	11.8	50	-22		Carthage, Mo.	31.3	62	-8	
New Bedford, Mass.	20.4	44	0.5	3.21	Luling, La.	78	20	2.04		Mauzy, Ind.	43	20	1.99	Glasgow, Mo.	19.1	50	-16	0.94	
Fall River, Mass.	19.8	51	-5	2.80	Grand Coteau, La.	52.4	73	25	1.62	Fillmore, Ind.	15.7	50	-16	1.43	Warrenton, Mo.	23.7	58	-10	
Somerset, Mass.	13.5	36	-11	2.94	Cleburne, Tex.	39.1	72	8	1.01	Romney, Ind.	14.6	52	-18	1.77	Harrisonville, Mo.				
Princeton, Mass.	10.8	35	-11	2.77	Fort Brown, Tex.	38.6	84	36	1.34	Dana, Ind.	15.6	52	-20	4.55	Ironton, Mo.	27.4	67	-10	0.65
Westborough, Mass.	20.8	53	-2	4.34	Comfort, Tex.		80	18	0.12	Richmond, Ind.	17.1	50	-22	1.75	Mascoutah, Ill.	24.7	66	-9	1.28
Leicester, Mass.	14.2	43	-10	3.38	Huntsville, Tex.		80	18	3.01	Columbus, Ind.	20.5	60	-14	0.88	Kirksville, Mo.	10.9	50	-22	0.70
Taunton, Mass.	21.4	52	1	2.93	Fort Couch, Tex.	45.7	79	15	2.15	Blue Lick, Ind.	24.6	62	-10	2.46	Lexington, Mo.	16.9	50	-19	1.39
Rowe, Mass.	11.2	39	-12	3.91	Austin, Tex.	38.9	77	24		Marengo, Ind.	29.7	62	-6	2.46	Louisiana, Mo.	17.9	51	-17	1.00
Worcester, Mass.	16.5	39	-3	3.18	Lead Hill, Ark.	32.2	78	4	1.47	Huntingburg, Ind.	25.1	62	-8	2.04	Mexico, Mo.	50	-19		0.66
Princeton, R. I.	22.0	38	-1	3.18	Wellsburg, W. Va.		2.50			Princeton, Ind.	25.1	62	-8	0.80	Miami, Mo.	19.0	50	-20	1.28
Nayatt Point, R. I.	13.0	38	-3	1.0	Helvetia, W. Va.	25.7	52	-22	2.65	Worthington, Ind.	20.3	64	-15	2.67	Oregon, Mo.	17.2	54	-22	1.57
Hartford, Conn.	13.8	45	-2	3.45	Milan, Tenn.	33.8	72	5	2.57	Degonia Springs, Ind.	26.1	68	-6	2.10	Sedalia, Mo.	20.7	56	-20	1.64
Southampton, Conn.	17.5	43	-3	4.08	Austin, Tenn.	33.0	69	3	2.66	Salem, Ind.	22.6	63	-10	1.45	Steelville, Mo.	64	-6		1.20
North Colebrook, Conn.	14.5	46	-11	2.13	Ashwood, Tenn.	35.5	68	3	2.60	Corydon, Ind.	24.3	63	-6	2.88	Sherrill, Mo.	27.4	64	-11	0.65
Bethel, Conn.				3.61	Greenville, Tenn.	32.0	62	1	2.80	Tipton, Ind.	15.7	50	-18		Saint Charles, Mo.		-14		0.80
Voluntown, Conn.				2.30	Maryville, Tenn.	36.0	68	5	2.99	Mattoon, Ill.	18.3	53	-14	0.65	Atchison, Kans.	18.7	53	-18	0.91
Fort Hamilton, N. Y.	22.9	48	-2	2.43	Andersonville, Tenn.	33.5	64	0	3.78	Gallatinville, Ill.	22.8	63	-11	0.78	Manhattan, Kans.	59	-18		1.50
Mountainville, N. Y.	18.3	46	-7	3.56	Careyville, Tenn.	33.0	63	0	3.20	Sycamore, Ill.	8.7	42	-27	1.55	Fort Scott, Kans.	26.5	56	-11	1.50
Pelermo, N. Y.	9.8	36	-1	2.55	Parksville, Tenn.	37.0	70	0	2.93	Sandwich, Ill.	9.1	46	-34	1.25	Wyandotte, Kans.	19.2	52	-14	0.83
Auburn, N. Y.	10.2	42	-8	3.30	Sunbright, Tenn.	32.1	68	4	3.53	Walton Centre, Ill.	10.6	48	-32	2.70	Sterling, Kans.	23.4	62	-12	0.93
Humphrey, N. Y.	14.1	46	-24	1.87	Grief, Tenn.	34.0	68	2	3.85	Peoria, Ill.	15.9	49	-2	0.87	Salina, Kans.	22.0	45	-6	0.67
Menand, N. Y.	13.8	40	-10	2.04	Farmingdale, Tenn.		2.66			Charleston, Ill.	16.0	60	-6	0.96	Yates Centre, Kans.	21.1	55	-10	0.55
Ithaca, N. Y.	15.3	44	-13	1.59	Fostoria, Tenn.	33.0	65	0.2	2.10	Anna, Ill.	28.0	69	-6	1.22	Emporia, Kans.	22.9	55	-14	0.46
Le Roy, N. Y.	15.1	47	-12	1.49	Grassy Cove, Tenn.	31.0	64	1	1.70	Bunker Hill, Ill.	20.3	60	-13	0.87	Clay Centre, Kans.	22.1	61	-21	1.19
Penn Yan, N. Y.				1.61	Cookville, Tenn.	31.0	69	-1	2.54	South Evanston, Ill.		44	-24	2.55	Mand, Kans.	25.7	64	-9	0.38
Cooperstown, N. Y.	10.5	38	-12	2.46	Manchester, Tenn.	32.0	67	0	2.19	Rockford, Ill.	7.6	42	-25	2.50	Wellington, Kans.	24.6	54	-9	0.57
North Volney, N. Y.	12.4	39	-7	2.30	Biddleton, Tenn.	32.0	68	0.5	4.37	Riley, Ill.	7.7	40	-24	1.92	Allison, Kans.	22.5	54	-20	1.14
Fort Jervis, N. Y.	14.3	39	-12	1.62	Beech Grove, Tenn.	34.0	70	3	2.65	Swanwick, Ill.	22.3	57	-10	0.66	Lawrence, Kans.	20.8	55	-14	1.12
Factoryville, N. Y.	14.8	42	-18	1.37	Fiat Creek, Tenn.	35.0	68	4	2.63	Hudson, Mich.	16.1	49	-36	1.09	Shelock, Kans.	26.2	60	-5	0.84
White Plains, N. Y.	22.8	42	-1	5.55	Florence Station, Tenn.	34.0	68	6	2.39	Harrisville, Mich.	45	26	1.66	Holton, Kans.	18.8	54	-22	2.00	
Fort Niagara, N. Y.	13.5	40	-12	1.22	Howell, Tenn.	30.0	72	6	2.09	Moorestown, Mich.	5.6	47	-32	1.54	Fort Yates, Dak.	4.1	49	-32	0.34
Fort Columbus, N. Y.	13.1	44	0	5.71	Barren Plains, Tenn.	32.0	64	2	1.10	Manistiquie, Mich.	6.9	42	-28	2.10	Fort Buford, Dak.	3.0	44	-32	0.26
Madison Barracks, N. Y.	10.6	40	-21	1.42	Hurricane Switch, Tenn.	34.0	65	3	2.45	Ann Arbor, Mich.	10.8	49	-23	1.40	Fort Totten, Dak.	-3.3	37	-35	0.19
Plattsburg Barracks, N. Y.	7.2	35	-27	1.33	Dickson, Tenn.	31.0	68	2	1.54	Ionia, Mich.	10.5	45	-20	2.19	Fort Meade, Dak.	12.2	55	-19	0.23
David's Island, N. Y.	23.5	52	3	3.60	Sailors Rest, Tenn.	32.0	59	1	2.07	Northport, Mich.	40	22	0.41	Fort Sisseton, Dak.	1.4	41	-36	0.15	
Phillipsburg, N. J.	21.0	40	-1	4.00	Hohenwald, Tenn.	34.0	70	2	2.52	Traverse									

fair days, 8; average number of clear days, 10; warmest days, 9th and 28th; coldest day, 11th.

Prevailing direction of wind, northwest.

A general snowfall is reported on the 12th at all stations except Mobile, Newton, and Clintonville. It was seven inches deep at Russellville, Carrollton, and Marion. Stations in north Alabama report additional slight falls of snow on the 10th, 13th, 14th, and 16th.

Greatest force of wind is reported by Mobile to be thirty-two miles an hour from the southwest; Chattanooga reports thirty miles an hour on the 9th from the northwest; Montgomery reports twenty-seven miles an hour from the west. All stations report a gale on the 9th, lasting about thirty minutes and accompanied by hail. This preceded the cold wave predicted upon that day, and struck the following points at the times specified: Russellville, 10 a. m.; Mount View, 11 a. m.; Birmingham, 12.20 p. m.; Roanoke, 2 p. m.; Auburn, 3 p. m.

Thunder storms are reported from Summerville, Union Springs, and Newton on the 5th, accompanied by hail and wind; from Russellville, Centre, Tuscumbia, Birmingham, and Tuscaloosa on the 17th; from Brundidge on the 24th. Roanoke, Union Springs, and Tuscumbia report some electricity in connection with the gale of the 9th.

Ice is reported upon eleven days at Jacksonville, nineteen days at Florence, thirteen days at Tuscumbia, nine days at Russellville, and ten days at Auburn.

The following meteorological summary for February, 1885, for Georgia, has been forwarded by Mr. R. J. Redding, State Meteorologist at Atlanta:

Districts.	Temperature.			Precipitation.
	Highest.	Lowest.	Mean.	
Northern Georgia.....	70.0	1.0	37.2	4.76
Central Georgia.....	78.0	13.0	43.6	3.42
Southern Georgia.....	74.0	18.0	49.4	3.70
State.....	78	1.0	43.4	3.96

The following meteorological summary and accompanying remarks are from the February report of the "Indiana Volunteer Weather Service," under direction of Professor W. H. Ragan, of De Pauw University, Greencastle:

Districts.	Temperature.			Precipitation.
	Highest.	Lowest.	Monthly mean.	
Northern counties.....	54.0	-25.0	14.2	1.83
Central counties.....	60.0	-26.0	17.2	1.79
Southern counties.....	69.0	-15.0	23.6	2.48
State.....	69.0	-26.0	18.3	2.03

The most marked meteorological features of the month, were the passage of the severe storms of the 8th and the 9th across the state from the southwest to northeast, accompanied by thunder, lightning, rain, snow, and sleet, and the cold wave which followed on the 10th. The first nine and the last two days of the month were moderate; those between were unusually cold. The average temperature for the month was from 8° to 14° below the normal.

The average temperature for the season was from 5° to 10° below the normal in the various counties. The precipitation was very near the normal, the snow fall being considerably above.

The following meteorological summary and accompanying remarks are from the February, 1885, report of the "Indiana Weather Service," under direction of Professor H. A. Huston, of Purdue University, Lafayette:

Districts.	Temperature.			Precipitation.
	Highest.	Lowest.	Mean.	
Northern counties.....	54.0	-25.0	13.4	1.98
Central counties.....	65.5	-26.0	17.8	1.71
Southern counties.....	69.0	-17.0	23.9	2.29
State.....	69.0	-26.0	18.4	1.99

The mean temperature for the state, 18°4, is 14°0 below that for last year; 14°7 below the mean of fourteen years at Indianapolis; 12°0 below the mean of nine years at Wabash; 11°1 below the mean of three years at

Worthington; 18°8 below the mean of seven years at Blue Lick, and 9°7 below the mean of six years at Lafayette.

The mean temperature for the three winter months at Wabash was 6°3 below the mean of the same months for nine years.

The mean precipitation for the state, 1.99 inches, was 3.18 inches below that for last year; 1.62 inches below the mean of fourteen years at Indianapolis; 1.50 inches below the mean of nine years at Wabash; 0.38 inch below the mean of three years at Worthington, and 2.37 inches below the mean of six years at Lafayette.

The mean snowfall for the state, 10.92 inches, is 7.12 inches above that of last year. The snows seriously interfered with the operations of railroads, this being especially so on the roads running north and south.

The thunder-storm on the night of the 8th and the morning of the 9th was noted in all sections of the state.

The following is an extract from the Illinois "Monthly Weather Review" for February, 1885, published under the direction of Mr. Charles T. Mills, Springfield:

The summary of meteorological observations contained in this review has been compiled from the weather reports received from the Signal Service and voluntary observers reporting to the Illinois Department of Agriculture.

February, 1885, was remarkable for low temperature, and in comparison with the corresponding month in former years, unusual depth of snowfall, and light precipitation.

The snowfall during the month averaged 16.23 inches at stations in the northern division; 9.41 inches at stations in the central division; and 6.80 inches at stations in the southern division.

At Aurora, Kane county, in the northern division, 20.90 inches of snowfall is reported for the month of February. The monthly snowfall in the vicinity of Warsaw, Hancock county, in the central division, was 17.40 inches, and 16.50 inches at Greenville, Bond county, in the southern division.

**Temperature.**—The average temperature during the month was much below the normal at all stations named in this report.

The lowest mean temperature for the month of February at any of the stations reporting was 7°70 at Marengo, McHenry county; the highest 31°80, at Cairo, Alexandria county. The monthly mean temperature in the three divisions of the state during the month, was as follows: northern division, 11°36; central division, 18°67; southern division, 25°86. The monthly mean temperature for the state was 18°63. The lowest temperature reported during the month was -32°00, on the 13th, at Wilton Centre, Will county. The greatest departures from the mean February temperature are reported by the observers at the following stations, where the temperature ranged as noted from ten to twenty degrees below normal: Keokuk, opposite Hancock county, -20°30; Marengo, McHenry county, -14°90; Sycamore, DeKalb county, -14°17; Aurora, Kane county, -14°10; Swanwick, Perry county, -14°40; Peoria, -12°94; Mattoon, Coles county, -12°83; Greenville, Bond county, -11°92; Centralia, Marion county, 11°76; Anna, Union county, -11°20; Springfield, Sangamon county, -10°88; Prairieville, Lee county, -10°77.

The lowest temperature reported during February in the northern division of the state was noted on the 11th and 13th. The temperature at four stations was -7°0 on the 11th and from -22°0 to -32°0 at four stations on the 13th.

In the central and southern divisions of the state the lowest temperature in February was noted on the 10th and 20th. The low temperature in the central division was from -11°0 to -14° at four stations on the 10th, and from -14°0 to -20°0 at four stations on the 20th.

In the southern division the extreme low temperature during the month was noted on the 10th and 20th. The temperature ranged from -5°50 to -15°0 at five stations on the 10th, and from -0°60 to -14°0 at five stations on the 20th.

The February mean temperature of the state has been as follows during the past five years: 1881, 23°09; 1882, 39°41; 1883, 26°44; 1884, 30°16; 1885, 18°49.

**Precipitation.**—The observers, with one exception, report the precipitation less than of any previous corresponding month represented in this report. The February rainfall of the state the past five years has averaged as follows: 1881, 4.73 inches; 1882, 4.63 inches; 1883, 6.29 inches; 1884, 4.02 inches; 1885, 1.29 inches.

There was no precipitation worthy of mention in any portion of the state on February 1, 2, 3, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 22, 25, 26, 27, and 28. The precipitation was quite general over the state on the 8th, 9th, and 15th. The heaviest daily precipitation, including rain and melted snow, reported during the month, was two inches at Wilton Centre, Will county, on the 9th; one inch at Prairieville, Lee county, on the 8th; one inch at Marengo, McHenry county, and 1.16 inches at Aurora, Kane county, on the 9th. The monthly precipitation exceeded two inches at the following stations: Wilton Centre, Will county, 2.76 inches; Aurora, Kane county, 2.09 inches; Chicago, Cook county, 2.01 inches. The monthly precipitation averaged 1.83 inches in the northern division, 0.83 inches in the central division and 1.06 inches in the southern division.

In the northern division there was, at several stations, an average of ten clear, ten fair, and eight cloudy days. At the stations in the central division there was an average of ten clear, ten fair, and six cloudy days. At the stations in the southern division there was an average of ten clear, eleven fair, and seven cloudy days.

*State summary.*

Highest barometer, 30.700 inches, at Wilton Centre.  
 Lowest barometer, 29.124 inches, at Peoria.  
 Mean barometer, 30.083 inches.  
 Range of barometer, 1.566 inches.  
 Mean relative humidity, 73.33 per cent.  
 Highest temperature, 72° 00, at Marion.  
 Lowest temperature, —32° 00, at Wilton Centre.  
 Mean temperature, 18° 49.  
 Greatest daily range of temperature, 42° 00, at Sycamore.  
 Least daily range of temperature, 1° 00, at Aurora and Pana.  
 Mean daily range of temperature, 18° 54.  
 Average number of clear days, 10.  
 Average number of fair days, 11.  
 Average number of cloudy days, 7.  
 Average number of days on which rain fell, 7.  
 Greatest number of days on which rain fell, 12, at Keokuk.  
 Least number of days on which rain fell, 3, at Mascoutah and Centralia.  
 Mean rainfall, 1.29 inches.  
 Average daily rainfall, .048 inch.  
 Greatest rainfall, 2.76 inches, at Wilton Centre.  
 Least rainfall, .66 inch, at Collinsville and Swanwick.  
 Average depth of snowfall, 10.85 inches.  
 Prevailing direction of wind, nw.

The following is an extract from the February, 1885, report of the "Louisiana Weather Service," under direction of Mr. Robert S. Day, New Orleans:

*General notes.*

The month has been the coldest on record since the establishment of the Signal Service, both at New Orleans and Shreveport, by several degrees. Five cold waves of greater or less duration crossed the state, accompanied by snow and hail, and ice in certain sections remote from the Gulf. The temperature was continuously cool for the season, delaying abnormally all vegetation. Northwest winds prevailed, veering to ne., e., and back to n., or rapidly round by the s. with showers to w. and nw. again. With the south wind low pressure prevailed. No severe storms are reported.

Farm work has commenced, and the stage of the river is encouraging to planters in the lowlands.

*State summary.*

Mean temperature for February, 46° 20; highest temperature, 81°, Whyteville and Cheneyville, 9th; lowest temperature, 14° 6, Shreveport, 10th; greatest daily range, 42° 20, Shreveport, 9th; least daily range, 2°, Mandeville, 2d.

Average rainfall, 3.18 inches; greatest daily rainfall, 2.46 inches, Alexandria, 24th; greatest rainfall for month, 4.46 inches, Cheneyville; average rainy days, 6.

River at New Orleans fell during the month 2.1 feet; river at Shreveport fell during the month 8.5 feet; river at Monroe fell during the month 6.1 feet; river at Alexandria fell during the month 14.9 feet.

*Frosts.*

Lake Providence, 1st, 2d, 7th, 10th, 11th, 16th, 19th, 20th, 21st, and 26th; Delta, 2d, 5th, 6th, 7th, 14th, 16th, 19th, 20th, 21st, 26th, and 27th; Vidalia, 10th, 19th, 21st, and 26th; Shreveport, 1st, 2d, 6th, and 27th; Cheneyville, 1st, 10th, 16th, 19th, 20th, and 26th; Whyteville, 1st, 10th, 16th, 19th, 20th, and 26th; New Iberia, 6th, 16th, 26th, and 27th; Franklin, 10th, 16th, and 27th; Donaldsonville, 10th, 14th, 16th, 19th, 26th, and 27th; Mandeville, 10th, 11th, 16th, 17th, and 27th.

The following is an extract from the February, 1885, report of the "Minnesota Weather Service," under direction of Prof. W. W. Payne, of the Carleton College, Northfield:

Highest barometer during the month, 30.455 on the 22d; lowest barometer during the month, 29.510 on the 3d; range of atmospheric pressure, .945.

Highest temperature, 40° 0 on the 2d; lowest temperature, —31° 0 on the 10th; range of temperature, 71° 0.

Mean temperature, 6° 5.

Mean relative humidity, 88.4 per cent.

Prevailing wind, west; maximum velocity of wind (per hour), 28 miles on 28th.

Total precipitation (in inches), 0.29; depth of snow at close of month (in inches), 7.5; total snowfall for month (in inches), 2.6.

Aurora, 11th.

Frosts, 13th, 27th.

Mean velocity of wind for month per hour (in miles), 8.5; total movement of wind for month (in miles), 5,730; average movement of wind per day (in miles), 204.6.

The following is an extract from the February, 1885, report of the "Missouri Weather Service," under direction of Prof. F. E. Nipher, Saint Louis:

February, 1885, has been unusually cold with deficiency of precipitation.

The lowest temperature reached at the central station was —12° on the 10th, the maximum of that day being —3°. This has been exceeded but once

before viz.: on February 3d, 1856, when Engelmann recorded —15°. The temperature has never been known to fall below zero after the 21st, a temperature of —4° 5 having been observed by Engelmann on that date in 1838. During last month the temperature reached —7° 3 on the 20th. The temperature fell below 32° on twenty-four days out of twenty-eight, and on thirteen days it did not rise above 32°. It fell below zero on five days, and on one day it did not rise above zero. The 27th and 28th were, however, mild and springlike, the maximum on the 28th being 66°. The mean temperature was 23° 1, which, with one exception (viz., in 1838, when the mean February temperature was 20° 8), is the coldest February ever observed in Saint Louis.

The coldest temperature observed in the state were —23° at Savannah, —22° at Kirksville, —21° 7 at Oregon, —20° at Sedalia and Miami. The highest minimum was 0° 6 at Cairo, Illinois. The highest maximum was 68° at Centreville. The rainfall (melted snow) has been less than one inch in the eastern and southern part of the state, except in the extreme southwest, where the fall was slightly above one inch. The rain was also slightly above one inch over the rest of the state.

At the close of the month the snow had all disappeared in the southern part of the state, and only the rapidly disappearing drifts remained in the northern part.

At Oregon the Missouri river has been blocked since the middle of December.

Lexington reports wheat uninjured, but peaches all killed.

The following is an extract from the February, 1885, report of the "Nebraska Weather Service" under direction of Professor Goodwin D. Swezey, of Doane College, Crete:

The unusual cold weather of the last two months has continued, the temperature remaining about as much below the normal for February as for January, viz.: about eight degrees for the mean temperature and ten degrees for the noon temperature. It has been the coldest February for eight years since the weather service was organized. The extremes of temperature, however, both high and low, have been about as usual.

It has also been, with one exception, the February of greatest snowfall; the number of cloudy days has been rather larger than usual. Thunderstorms, which usually occur in February to a limited extent, have not been reported, except from the western part of the state, a single one occurring in the Republican valley.

The average of rain and melted snow, chiefly the latter, for the different sections of the state for February, 1885, is as follows:

Northeast section, 0.71 inch; southeast section, 1.10; northwest section, 0.94; southwest section, 1.74. Greatest number of days of appreciable precipitation, eleven at Omaha; least, two at Nebraska City.

The following is an extract from the February, 1885, bulletin of the "New England Meteorological Society," under direction of Prof. Winslow Upton:

*Summary.*

The following discussion of the meteorological conditions of the month is based upon reports from eighty-seven observers, and upon the current publications of the United States Signal Service:

*General conditions.*—The month has been characterized by steady cold weather, far below the average for February, as mentioned more particularly below. This period of unusual cold, which prevailed with but little interruption until the close of the month, was a continuation of the cold weather which began about the middle of January. By its prevalence the whole character of the winter has been changed from one of unusual mildness to one of unusual severity. Adopting the calendar division of the winter, the two periods are of nearly equal extent. The mild period prevailed in December and the first half of January and closed with but little frost in the ground; the cold period began sharply and continued until the end of February, which closed with the ground frozen to a depth of several feet. There were several severe storms in February, but an unusual degree of fair weather.

*Precipitation.*—The amount of rain and melted snow has been nearly normal, on the average, but there is a great disagreement between different stations. Thus, Gardiner, Maine, and Lowell, Massachusetts, report an excess amounting to 86 and 43 per cent., respectively, of the average, while at New Haven, Connecticut, and Providence, Rhode Island, the deficiency was 26 and 22 per cent., and at the summit of Mount Washington the recorded amount was but 47 per cent of that heretofore noted. The form was largely snow, the snowfall varying from five inches on the southern coast to nearly thirty inches in the interior; the greatest amounts reported were twenty-seven inches at Saint John, New Brunswick, and twenty-nine inches at Newport, Vermont. The two most severe storms of the month, on the 9–10th and 16th, were attended by rain at some stations and snow at others.

*Temperature.*—The temperature was, without exception, below the normal, the amounts varying from 1° 4, at Saint John, New Brunswick, to 11° 8 at Fitchburg, Massachusetts. As this is the most marked peculiarity of the month it will be interesting to examine it more in detail. Not only was the average below the normal, but at some stations it was lower than that of any February covered by the records. Thus, at New Bedford, Massachusetts, where the record is unbroken for seventy-three years, the coldest February heretofore had an average temperature of 21° 4, or 1° higher than that of the past month. At Worcester, Massachusetts, the coldest February heretofore, in the record of forty-seven years, was in 1849, in which the tem-

perature was  $2^{\circ}.1$  above that of the past month. At Middletown, Connecticut, the mean temperature was lower, not only than that of any February, but than that of any month in twenty-seven years; the nearest approach was in January, 1875, which was  $0^{\circ}.3$  warmer than that of the past month. These low averages are not due to extremes of cold so much as to the persistence of temperatures a few degrees below the normal. In some cases, however, the minimum temperatures recorded were extremely low,  $-38^{\circ}$  being recorded at Woodstock, Vermont, and also at the summit of Mount Washington. The average minimum for the month was, at some stations, below zero, and the average ranges of temperature were large.

**Pressure.**—Four barometric depressions, in groups of two each, passed over New England, or in the immediate vicinity. The first moved from the northwest over the lakes and down the Saint Lawrence valley, and was accompanied by light snows on the 1st; the second followed nearly the same path, and was similarly accompanied by light snows on the 4th and 5th. Both were followed by severe cold, the temperatures on the 3d being, at northern stations, the lowest of the month. The barometer during this cold period indicated a pressure below the normal, which is a very unusual occurrence. The third and fourth depressions were both storms of great energy coming from the southwest, and were accompanied by severe gales and excessive rain or snow. The former moved down the Saint Lawrence valley on the 10th, while a subsidiary depression developed near New York, which later united with it. The precipitation was rain or sleet, except in the extreme northern portion, and the winds on the coast were high. This depression was followed by a great fall of temperature and rise of pressure, the lowest temperatures of the month having been generally noted on the 12th. The fourth depression was attended by violent gales, and was the most severe storm of the month. Snow to a depth of eighteen inches fell on the 15th and 16th in the Northern states, causing blockades to the railroads, while on the coast the high wind and tide caused much damage. This depression was not followed by an area of high pressure; for four days the pressure was below the normal, though the temperatures were low. On the 27th and 28th a low area northwest of New England existed, and southerly winds and warmer weather were experienced.

**Wind.**—The greatest velocities were reported on the 16th in connection with the fourth depression above described. The highest were 50 miles per hour at Providence, Rhode Island, and New Haven, Connecticut; 55 at Brattleboro, Vermont; 74 at Blue Hill, Massachusetts (the anemometer cups blown away after this record); 108 at Mount Washington. The total wind movement at Blue Hill, Massachusetts, was 14,278 miles; at Mount Washington, 22,615 miles, the latter being 4,255 miles less than the average.

**Miscellaneous.**—Auroras were quite generally noted on the 5th, 11th, and 21st.

The amount of snow on the ground at the end of the month is variously estimated. But little remained at some stations on the southern coast, while 16 inches were reported at Dorset, Vermont, 24 at Gardiner, Maine, and 30 at Rowe, Massachusetts.

The following is an extract from the February, 1885, report of the "Ohio Meteorological Bureau" under direction of Professor T. C. Mendenhall:

**Atmospheric pressure.**—Highest monthly mean, 30.09 inches, at Dayton; lowest monthly mean, 29.89, at Hiram; highest observed pressure, 30.63, at Dayton and Wauseon on the 23d; lowest observed pressure, 29.12, at Hiram on the 9th; range for the state 1.51; station reporting greatest range, Wauseon, 1.42; station reporting least range, College Hill, 1.01.

**Temperature.**—Highest monthly mean,  $27^{\circ}.7$ , at Ironton; lowest monthly

mean,  $11^{\circ}.9$ , at Wauseon; highest observed,  $68^{\circ}$ , at Portsmouth on the 28th; lowest observed,  $-27^{\circ}$ , at Junction on the 13th; range for the state,  $95^{\circ}$ ; station reporting greatest monthly range, Ironton,  $79^{\circ}$ ; station reporting least monthly range, Cleveland,  $58^{\circ}$ .

**Precipitation.**—Largest monthly, 3.34, at Pomeroy; least monthly, 0.61, at Oberlin and Toledo.

**Winds.**—Prevailing direction, southwest.

The following is an extract from the February, 1885, report of the "Tennessee Weather Service," under direction of Hon. A. J. McWhirter, Nashville.

The weather during the month of February was generally disagreeable, with abnormally low temperature and marked deficiency in rainfall. Among the special features of the month was the thunder-storm of the 9th, with its accompaniment of hail, and high wind in some localities.

The mean temperature for the month was  $33^{\circ}.77$ , more than  $11^{\circ}$  below the mean of February of last year, and only  $0^{\circ}.19$  above the mean of the month previous. The mean of maximum temperatures was  $67^{\circ}.57$  and the mean of minimum temperatures  $2^{\circ}.8$ , or  $2^{\circ}.67$ , and  $4^{\circ}.7$  below the respective means for the corresponding period of last year. The maximum temperature was general on the 28th, and the minimum on the 11th.

The average precipitation was only 2.39 inches, 6.06 less than the average for February of last year, which was considerably above the normal. This precipitation was well distributed. The days of greatest precipitation were the 5th, 9th, 15th, and 24th, the last showing the greatest precipitation during the month. A considerable portion of the precipitation was from the frequent snowfalls. Only one day, the 21st, was reported entirely free from precipitation by rain or snow.

Thunder-storms were reported as follows: on the 9th at Chattanooga, Maryville, Andersonville, Quarter, Careyville, Sunbright, Grief, Sweetwater, Grassy Cove, Cookeville, Manchester, Florence Station, Hurricane Switch, Kingston Springs, Dickson, Hohenwald, McKenzie, Henderson, Milan, Trenton; on the 17th at Savannah and McKenzie.

#### State summary.

Mean temperature,  $33^{\circ}.77$ ; highest temperature,  $72^{\circ}$ , on the 28th, at Howell, Kingston Springs and Milan; lowest temperature,  $-4^{\circ}$ , on the 11th, at Sunbright; range of temperature,  $76^{\circ}$ , mean monthly range of temperature,  $63^{\circ}$ ; greatest monthly range of temperature,  $73^{\circ}$ , at Kingston Springs; least monthly range of temperature,  $56^{\circ}$ , at Covington; mean daily range of temperature,  $16^{\circ}$ ; greatest daily range of temperature,  $44^{\circ}$ , on the 9th, at Nashville and Dickson, and on the 28th at Kingston Springs; least daily range of temperature,  $1^{\circ}$ , on the 8th, at Trenton and Sweetwater, on the 15th at Grassy Cove, on the 16th at Bolivar, on the 24th at Savannah and Henderson, and on the 26th at Sweetwater. Mean of maximum temperatures,  $67^{\circ}.57$ ; mean of minimum temperatures,  $2^{\circ}.8$ .

Mean depth of rainfall, 2.39 inches; mean daily rainfall, .085 inch; greatest rainfall, 4.37 inches, at Riddleton; least rainfall, 1.10 inches, at Quarter and Barren Plains; greatest local daily rainfall, 1.63 inches, on the 24th, at Chattanooga.

Days of greatest rainfall, 5th, 9th, 15th, 24th; day of greatest rainfall during month, 24th; average number of days on which rain or snow fell, 9; average number of clear days, 8.2; average number of fair days, 8; average number of cloudy days, 11.8.

Average snowfall during month, 2 inches; greatest depth of snowfall during month, 6.50 inches, at Grief and Fostoria; coldest day, 11th.

Prevailing direction of wind, north.